

### ABSTRACT

Methods and compositions for altering the viability of cells, particularly cancers in animals and humans are disclosed. The compositions of the present invention are formed from a set of components comprising one or more of the following: a dithiocarbonyl, preferably dithiocarbamate, compound; a divalent metal ion; a modulator of cellular glutathione levels; and an inhibitor of the phosphorylation of choline. The compositions described herein induce a relatively selective and rapid effect on the viability of cancer cells by inducing a mixture of apoptotic and necrotic cell death, with the dominant pathway being apoptosis. Particularly preferred active compositions comprise all four components, although combinations of fewer components can be fully effective in certain tumors.

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